

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the captioned patent application:

Listing of Claims:

1. (Currently Amended) A system for rehabilitation of a hearing disorder, comprising:
at least one acoustic sensor, ~~located upstream of analog-digital converters, for picking~~ configured to sense up an acoustic signal and configured to convert ~~for converting~~ it said acoustic signal into an electrical audio signal,
an electronic signal processing unit ~~for~~ configured to process and amplify ~~processing and amplifying~~ said electrical audio signal, ~~wherein the said~~ signal processing unit including,
has a speech analysis and recognition module,
wherein ~~the said~~ speech analysis and recognition module are arranged an arrangement for to detect and extract ~~detecting and extracting~~ additional prosody of the speech information, and
a speech synthesis module ~~for~~ configured to facilitate ~~facilitating~~ the transmission of speech information in a noisy environment;
~~wherein the speech analysis and recognition module has an arrangement for detecting and extracting additional prosody of the speech information, and~~
wherein ~~the said~~ speech synthesis module is arranged to take ~~provided with an arrangement for taking~~ into account the prosody of speech information in speech synthesis, and
~~an electrical power supply unit which supplies individual components of the system with current, and~~
an actuator arrangement ~~which is configured to provide output stimulation and configured~~ for positioning in a single external auditory passage; ~~with~~
said actuator arrangement at least one output actuator comprising at least dual output stimulators, wherein

said output stimulators are at least one extracochlear electroacoustic, electromechanical, or purely electric stimulator, and
at least an additional electroacoustic, electromechanical, or purely electric stimulator. ~~selected from the group consisting of electroacoustic, electromechanical, and purely electrical actuators, and any combination thereof, for stimulation of damaged hearing based on the electrical audio signal processed in electronic signal processing unit.~~

2. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the signal processing unit ~~has~~ comprises:
a digital signal processor ~~which contains~~ having software modules for speech analysis and synthesis.
3. (Currently Amended) The system ~~as claimed in claim~~ of 2, wherein the speech analysis and speech recognition module and the speech synthesis module are adaptive
4. (Currently Amended) The system ~~as claimed in~~ of claim 2, wherein the speech analysis and speech recognition module and the speech synthesis module are re-programmable.
5. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the speech analysis and speech recognition module and the speech synthesis module include a digitally implemented neural network.
6. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the speech analysis and speech recognition module and the speech synthesis module are adapted to transmit phonetic categories between ~~them~~ said modules.
7. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the speech analysis and speech recognition module and the speech synthesis module are adapted to transmit lexical categories between ~~them~~ said modules.

8. (Cancelled).
9. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein
said the arrangement for is configured to detect and extract ~~detecting and extracting~~
prosody of speech information is adapted for extraction of level and characteristic of
fundamental speech frequency for voiced sounds, and
~~wherein~~ the arrangement ~~for~~ configured to take ~~taking~~ into account prosody of
speech information in speech synthesis is adapted to effect the corresponding modulation
of the output signal.
10. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the speech
analysis and recognition module and the speech synthesis module are adapted to be turned
off to enable processing of audio signals without speech analysis and synthesis.
11. (Currently Amended) The system ~~as claimed in~~ of claim 10, further ~~comprising~~
~~means for~~ configured to automatically ~~turning turn~~ off the speech analysis and recognition
module and the speech synthesis module at a low level of interfering sound.
12. (Currently Amended) The system ~~as claimed in~~ of claim 10, further configured to
~~comprising means for turning turn~~ off the speech analysis and recognition module and the
speech synthesis module by remote control.
13. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the signal
processing unit further includes ~~contains~~ software modules adapted to enable masking of
tinnitus parallel to operation of the hearing aid.
14. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the signal
processing unit includes, ~~has~~
a preprocessing arrangement for at least one of pre-amplification and filtering, and
~~has~~ an A/D converter for analog-digital (A/D) conversion of the acoustic signals.

15. (Currently Amended) The system ~~as claimed in~~ of claim 14, wherein the preprocessing arrangement comprises an anti-aliasing filter.
16. (Currently Amended) The system ~~as claimed in~~ of claim 1, ~~wherein further comprising a plurality of acoustic sensors, wherein are provided,~~
~~each of the said~~ acoustic sensors being are configured to be upstream of an analog-digital converter.
17. (Currently Amended) ~~The S~~system ~~as claimed in~~ of claim 1, wherein at least one digital-analog converter is connected upstream of the actuator arrangement.
18. (Currently Amended) The system ~~as claimed in~~ of claim 1, wherein the actuator arrangement comprises a plurality of actuators, and
wherein a respective digital-analog converter is connected upstream of each actuator.
19. (Currently Amended) The system ~~as claimed in~~ of claim 17, wherein the said signal processing unit ~~has further comprises:~~
a digital signal processor ~~for configured to process processing~~ A/D-converted acoustic sensor signals,
~~which wherein said signals~~ have been preprocessed by means of the said preprocessing arrangement and configured to generate ~~for generation~~ of digital signals for tinnitus masking.
20. (Currently Amended) The system ~~as claimed in~~ of claim 14, wherein the said signal processing unit further comprises:
~~has~~ a digital signal processor ~~for configured to process processing~~ A/D-converted acoustic sensor signals,
~~which wherein said signals~~ have been preprocessed by means of the said preprocessing arrangement and ~~for configured to generate generation~~ of digital signals for tinnitus masking.

21 – 67 (Cancelled)

68. (New) A system for rehabilitation of a hearing disorder, comprising:
at least one acoustic sensor, configured to sense an acoustic signal and configured to convert said acoustic signal into an electrical audio signal,
an electronic signal processing unit configured to process and amplify said electrical audio signal, said signal processing unit including,
a speech analysis and recognition module,
wherein said speech analysis and recognition module are configured to perform at least one of speech information segmentation or recognition,
and
wherein said speech analysis and recognition module are arranged to detect and extract additional prosody of the speech information, and
a speech synthesis module configured to facilitate the transmission of speech information in a noisy environment,
wherein said speech synthesis module is arranged to take into account the prosody of speech information in speech synthesis, and
an actuator arrangement configured to provide output stimulation.
69. (New) The system of claim 68, wherein said signal processor is configured to output a purely artificial speech signal.
70. (New) The system of claim 69, wherein said signal processor is configured to effectively eliminate inputside interference portions.

71. (New) A system for rehabilitation of a hearing disorder, comprising:
at least one acoustic sensor, configured to sense an acoustic signal and configured to convert said acoustic signal into an electrical audio signal,
an electronic signal processing unit configured to process and amplify said electrical audio signal, said signal processing unit including,
a speech analysis and recognition module, configured to facilitate the transmission of speech information in a noisy environment;
a speech synthesis module arranged to take into account the prosody of speech information in speech synthesis, and
an actuator arrangement configured for positioning in a single external auditory passage;
said actuator arrangement comprising at least dual output stimulators, wherein
said output stimulators are at least one extracochlear electroacoustic, electromechanical, or purely electric stimulator, and
at least an additional electroacoustic, electromechanical, or purely electric stimulator.

72. (New) The system of claim 71, wherein said additional stimulator comprises an intracochlear output stimulator.

73. (New) The system of claim 72, wherein said additional intracochlear output stimulator comprises an electromechanical converter for excitation of the fluid-filled inner-ear spaces.

74. (New) The system of claim 72, wherein said additional intracochlear output stimulator comprises a purely electrical electrode array.

75. (New) The system of claim 71, wherein said at least dual output stimulators comprise:

an extracochlear multichannel array of electromechanical converters for stimulation of the middle ear, and

an intracochlear electrically acting stimulation electrode array, having

at least one stimulation electrode for electrical stimulation of the inner ear.

76. (New) The system of claim 71, wherein said extracochlear output stimulator comprises an electroacoustic stimulator.